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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,858	06/26/2003	Sentaro Sugita	239656US3	1470
22850	7590	09/07/2006		
C. IRVIN MCCLELLAND OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
			EXAMINER JOYCE, WILLIAM C	
			ART UNIT 3682	PAPER NUMBER

DATE MAILED: 09/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/603,858	Applicant(s) SUGITA, SENTARO	
	Examiner William C. Joyce	Art Unit 3682	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-8 is/are pending in the application.
- 4a) Of the above claim(s) 7 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed June 19, 2006 for the above identified patent application.

Priority

Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on June 26, 2002. It is noted, however, that applicant has not filed a certified copy of the Japanese application as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 and 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-In claim 1, the language "arch extends a width of approximately two second thread grooves" is not fully understood because of applicant use of the relative term "approximately". For example, does an arch that extends a width of 2 1/2 or 3 thread grooves anticipate the claim. Further, it appears the claim language is inaccurate because instant Figure 7 illustrates the arch extending a distance greater than two thread grooves. Appropriate correction is required.

-The scope of claim 3 can not be determined because it depends from cancelled claim 2.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Edwards (US Patent 3,143,896).

Edwards illustrates a ball screw device comprising: a nut (14) with a first thread groove, a screw (10) shaft having a second thread groove, a plural number of balls (18) between the first thread groove and the second thread groove, and a deflector (20) built into the nut to provide a ball-return path which returns the balls so as to circulate endlessly, wherein the deflector comprises a deflector piece (24) defines a top plate of the ball-return path and a guide member (26) which defines sidewalls of the ball-return path.

5. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Wilke (US Patent 3,771,382).

Wilke illustrates a ball screw device comprising: a nut (1) with a first thread groove, a screw (15) shaft having a second thread groove, a plural number of balls (14)

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between the first thread groove and the second thread groove, and a deflector (2) built into the nut to provide a ball-return path which returns the balls so as to circulate endlessly, wherein the deflector comprises a deflector piece defines a top plate (4 or 5) of the ball-return path and a guide member which defines sidewalls (4a) of the ball-return path.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Edwards (US Patent 3,143,896) or Wilke (US Patent 3,771,382) in further view of Millns (US Patent 2,468,506).

Neither Edwards or Wilke teach the screw arrangement having a plurality of deflectors spaced at equal intervals in a circumferential direction. The prior art to Millns illustrates two transfer passages (d,e) being spaced 180 degrees in a circumferential direction. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the screw arrangement of either Edwards or Wilke with two transfer passages spaced 180 degrees in a circumferential direction, as taught by Millns, motivation being to provide multiple ball paths so as to increase the operating capacity of the device.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Edwards (US Patent 3,143,896) or Wilke (US Patent 3,771,382) in further view of Shirai et al. (US Patent 6,513,978).

Neither Edwards or Wilke teach the screw arrangement having a plurality of separators, however it was notoriously known in the art to use separators in a ball screw. For example, the prior art to Shirai et al. teaches a plurality of separators for a ball screw. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the screw arrangement of either Edwards or Wilke with separators, as taught by Shirai et al., motivation being to reduce the noise caused by the circulating balls.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over either Edwards (US Patent 3,143,896) or Wilke (US Patent 3,771,382) in further view of Walter (US Patent 4,235,122).

Neither Edwards or Wilke teach the screw arrangement configured with a nut housing or an elastic member. The prior art to Walter teaches a ball screw device comprising a nut housing (8) that the nut is inserted therein, and an elastic member (9) which is provided on an outer surface of the guide member (3), and the elastic member is engaged with an inner surface of the nut housing to fix the guide member to the nut. It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify either Edwards or Wilke with a nut housing and an elastic member, as taught by Walter, motivation being to better support the deflector to the nut.

Response to Arguments

10. Applicant's arguments filed June 19, 2006 have been fully considered but they are not persuasive.

Applicant argues Edwards teaches a ball-return tube having a width of approximately one of the grooves 16 or 12. This argument is not persuasive because Figure 1 illustrates the ball-return tube having a width of approximately two thread grooves. Referring to Figure 3, it is submitted the intermediate portion of the deflector piece is formed with an arch having a concavity, wherein the arch includes a pair of radius portions connected by a straight portion. It is acknowledged the arch of Wilke does not have a constant radius, however the claim language does not preclude an arch having a straight portion connecting a pair of radius portions. Accordingly, the arch (formed by the pair of radius portions and the straight portion) extends a width of approximately two of the thread grooves.

Applicant argues Wilke discloses the guide paths formed with planar walls 4 and 4a and does not teach the deflector piece having an arch. This argument is not persuasive because the rib 5 is considered a top plate having a concavity that is formed on an inner surface of the intermediate portion that extends a width of approximately two thread grooves.

Alternatively, Figure 6 appears to show the surface 4 as having a concavity. Referring to column 3, lines 54+, Wilke discloses “[s]ince the bottom *curve* 4 of the spherical guide path 4 and 4a is dependent of the spindle diameter...” It is acknowledged Wilke describes the guide path 4 and 4a as “rectangular” (column 3, line 53), however Figure 2 of Wilke illustrates the guide path as “rectangular” only in the cross sectional view.

Accordingly, the claim language does not preclude the screw arrangements disclosed by either Edwards or Wilke.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to William C. Joyce whose telephone number is (571) 272-7107. The examiner can normally be reached on Monday - Thursday 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571) 272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


William C. Joyce